Energy Briefing

Twentynine Palms MAGTFTC

FEMP Conference Presentation

13 May 2003

LCDR Rob Tye, CEC USN

Agenda

- What is MAGTFTC - The Mission
- MAGTFTC 29 Palms Master Plan Efforts
- How MAGTFTC Uses Energy
- Energy Projects Underway
- Future Plans - Lessons learned

"This is a "Win-Win for the Marines and a critical resource for our mission"
COL James D. Nichols, USMC Chief of Staff MAGTFTC 29 Palms - 28FEB03

"Strategic energy planning is a key component of our Master Plan"
LCDR Rob Tye, CEC, USN Head FMD MAGTFTC 29 Palms

Best Practices = Best Results

The Mission

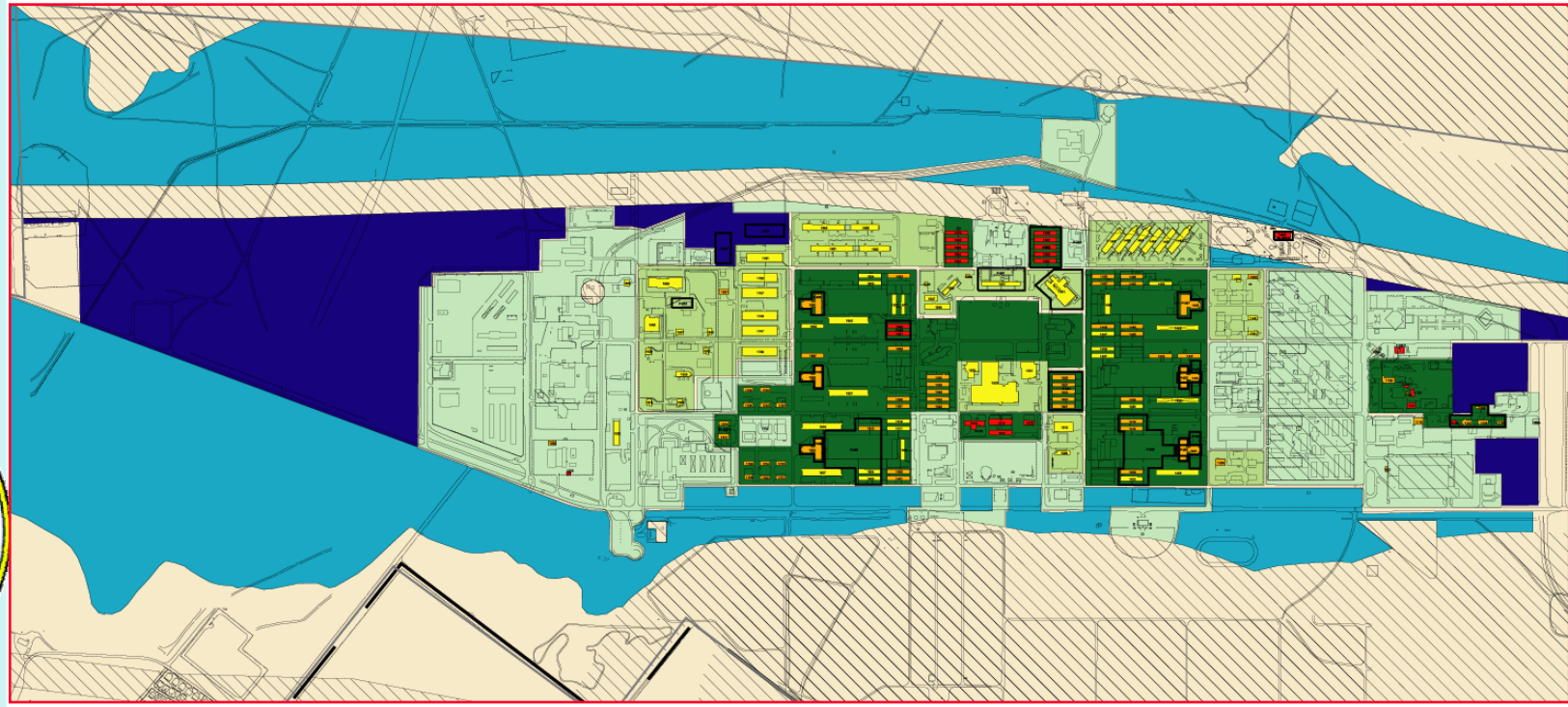
- The CAX - Two Minute Drill
- Communications School
- Camp Wilson Basics
- Equipment Available 24/7/365

Effective Combat Training Environment

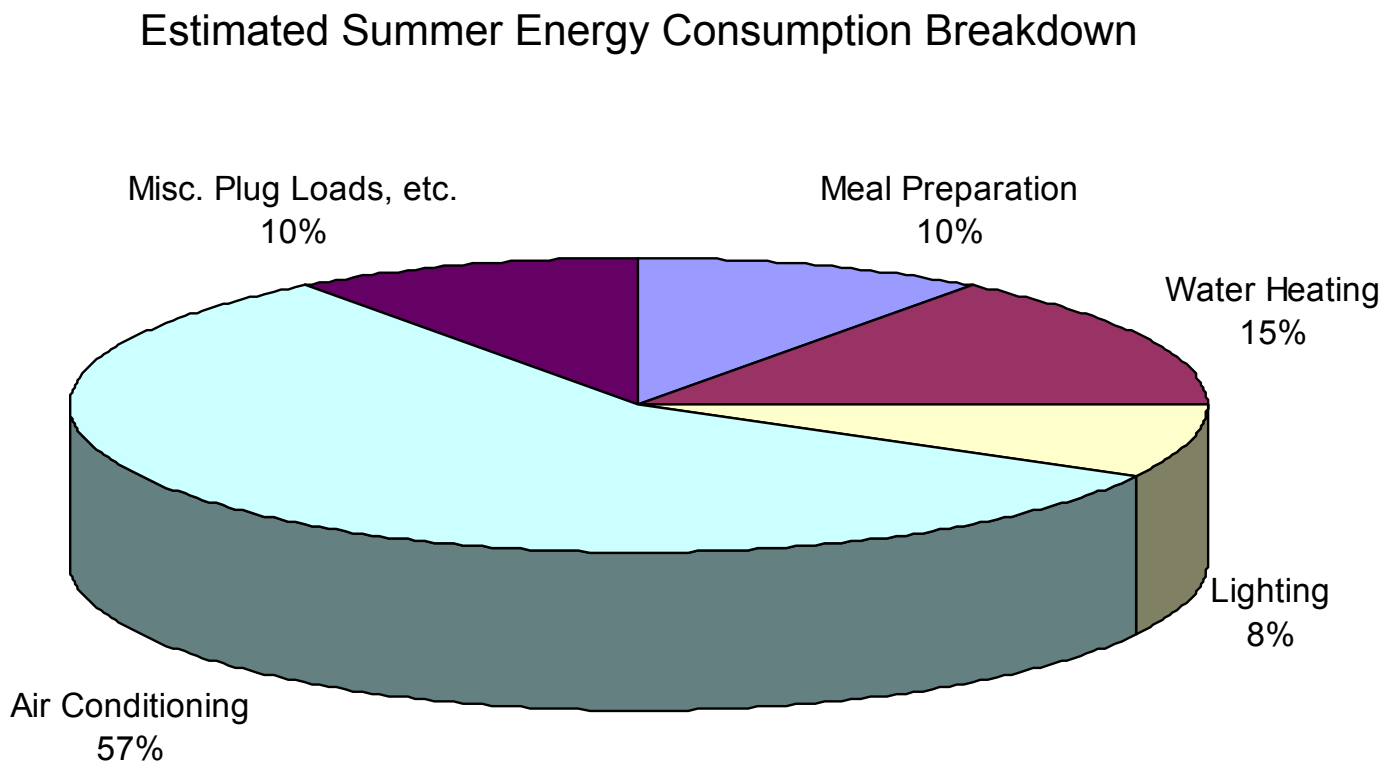
Combined Arms Exercise

Master Plan – Developed with Energy Usage in Mind

High Development Potential
Low Development Potential
High Redevelopment Potential
Medium Redevelopment Potential
Low Redevelopment Potential

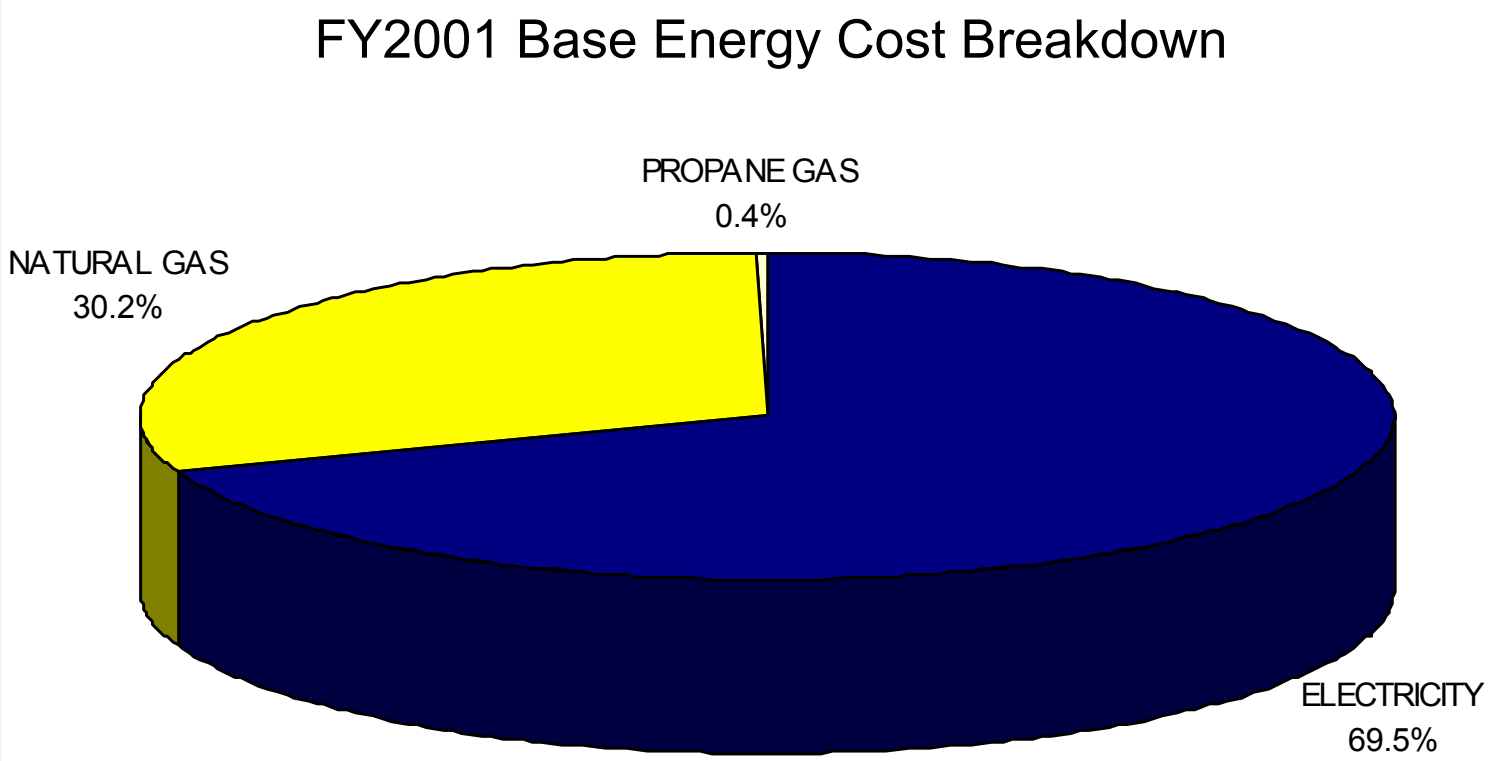


MAGTFTC Energy Usage



Environmental Driven Consumption

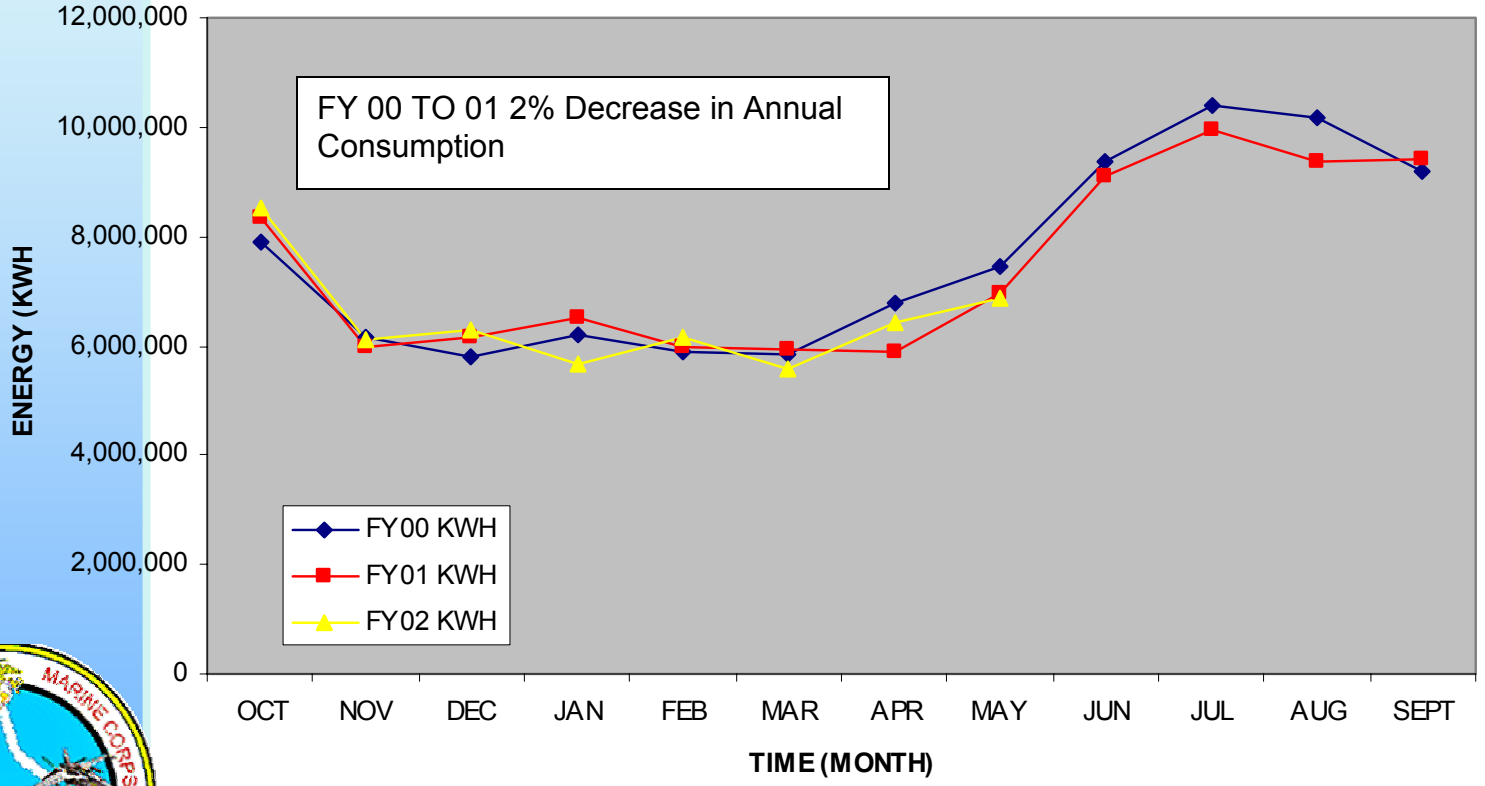
Types of Energy



Total Cost:$14,423,177

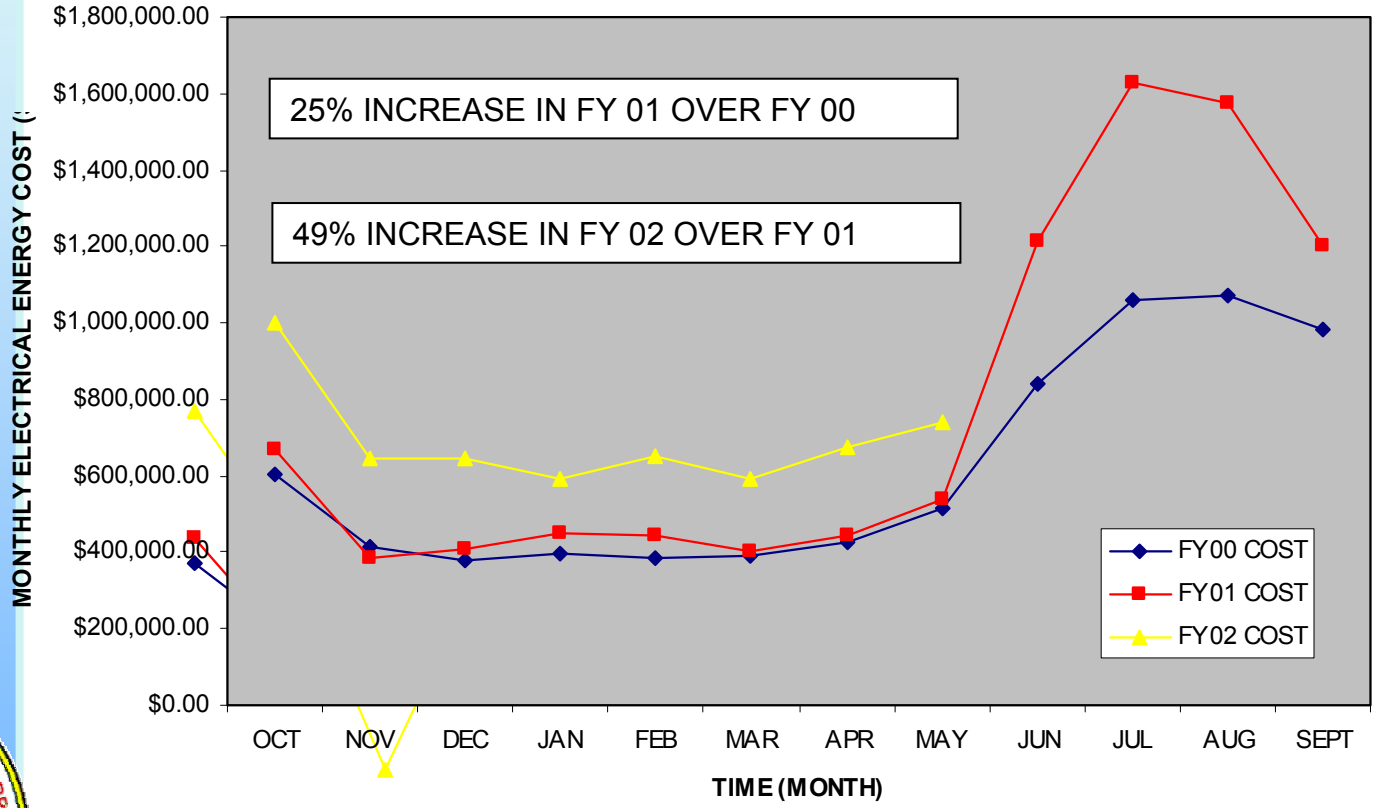
Cost of Supporting Mission

Electrical Energy



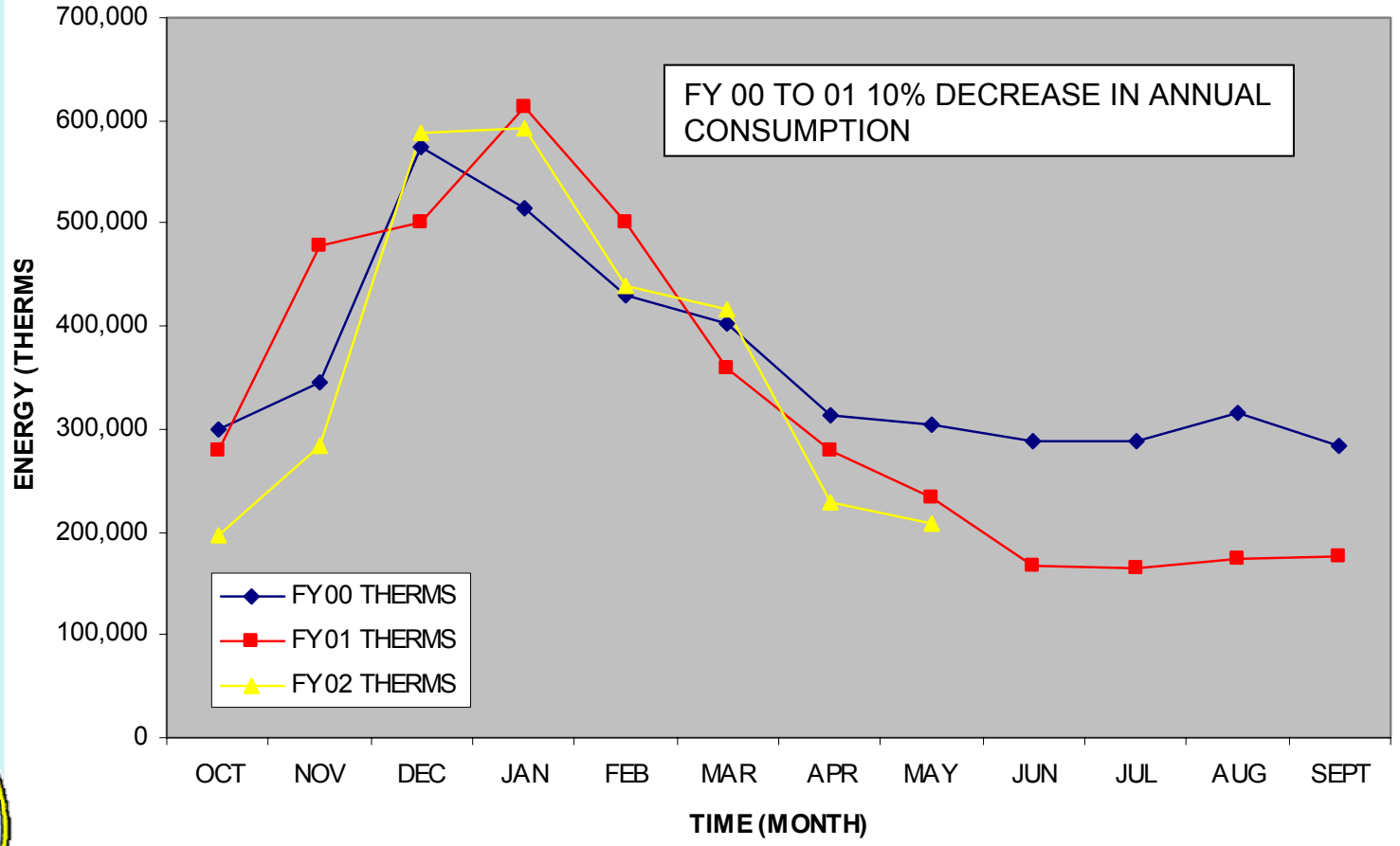
Positive Effect of Energy Planning

Electrical Costs



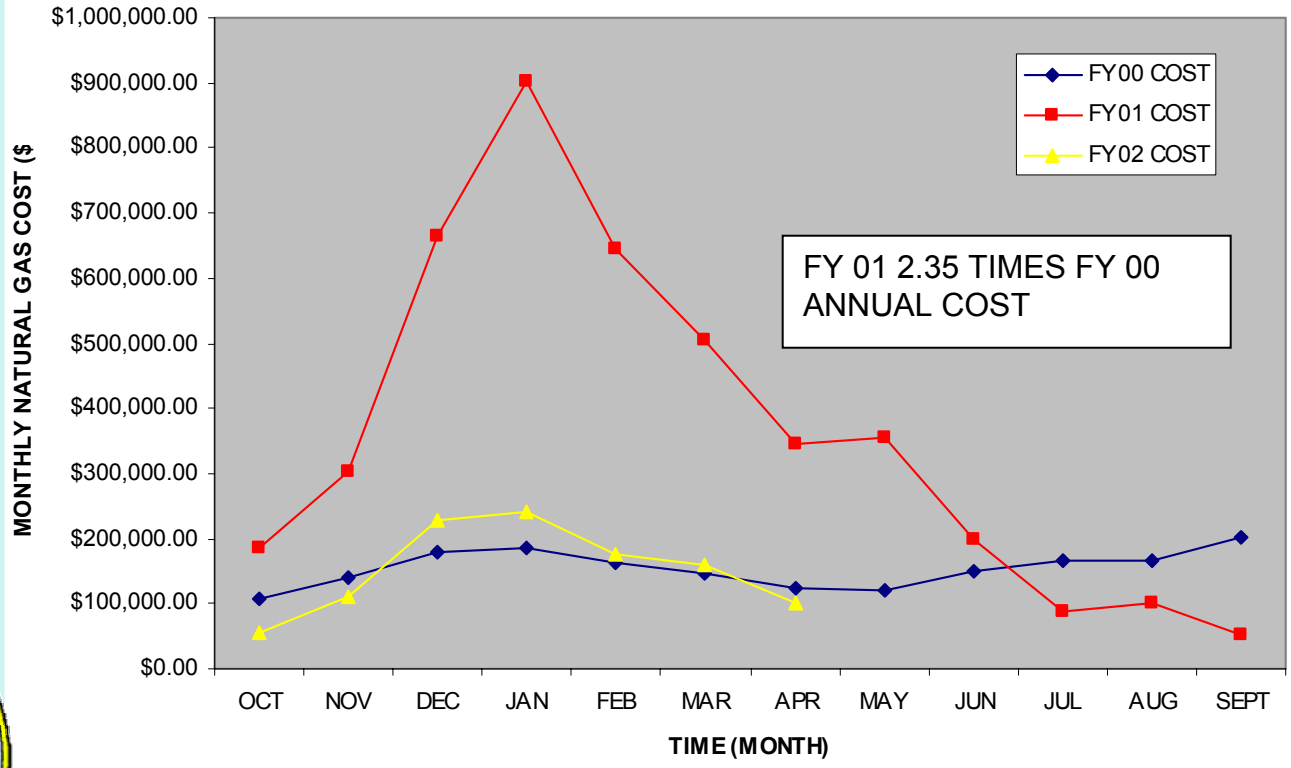
Costs May Impact Mission Delivery

Natural Gas Usage



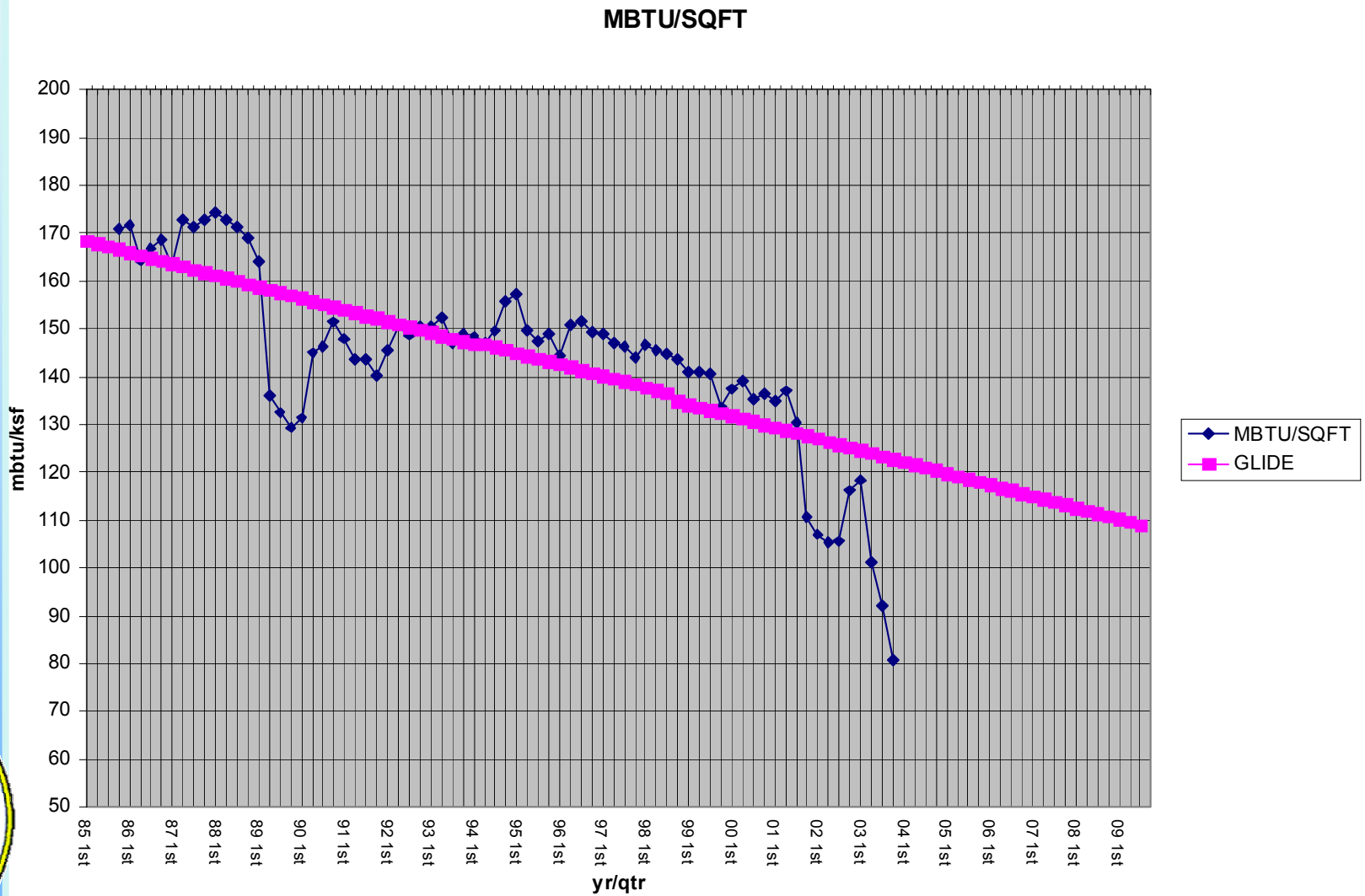
Managing Through Efficiency Efforts

Natural Gas Costs



Cost of the Energy Crisis

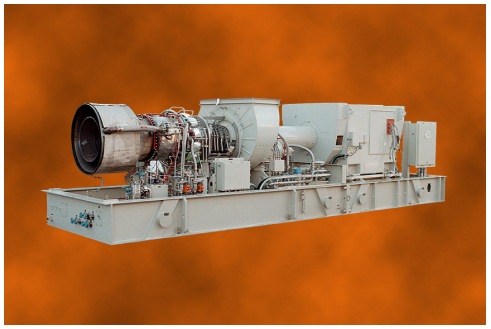
Updated DUERS (with CHP)



Meeting the Mandate

Strategic Projects

Combined Heat and Power Systems



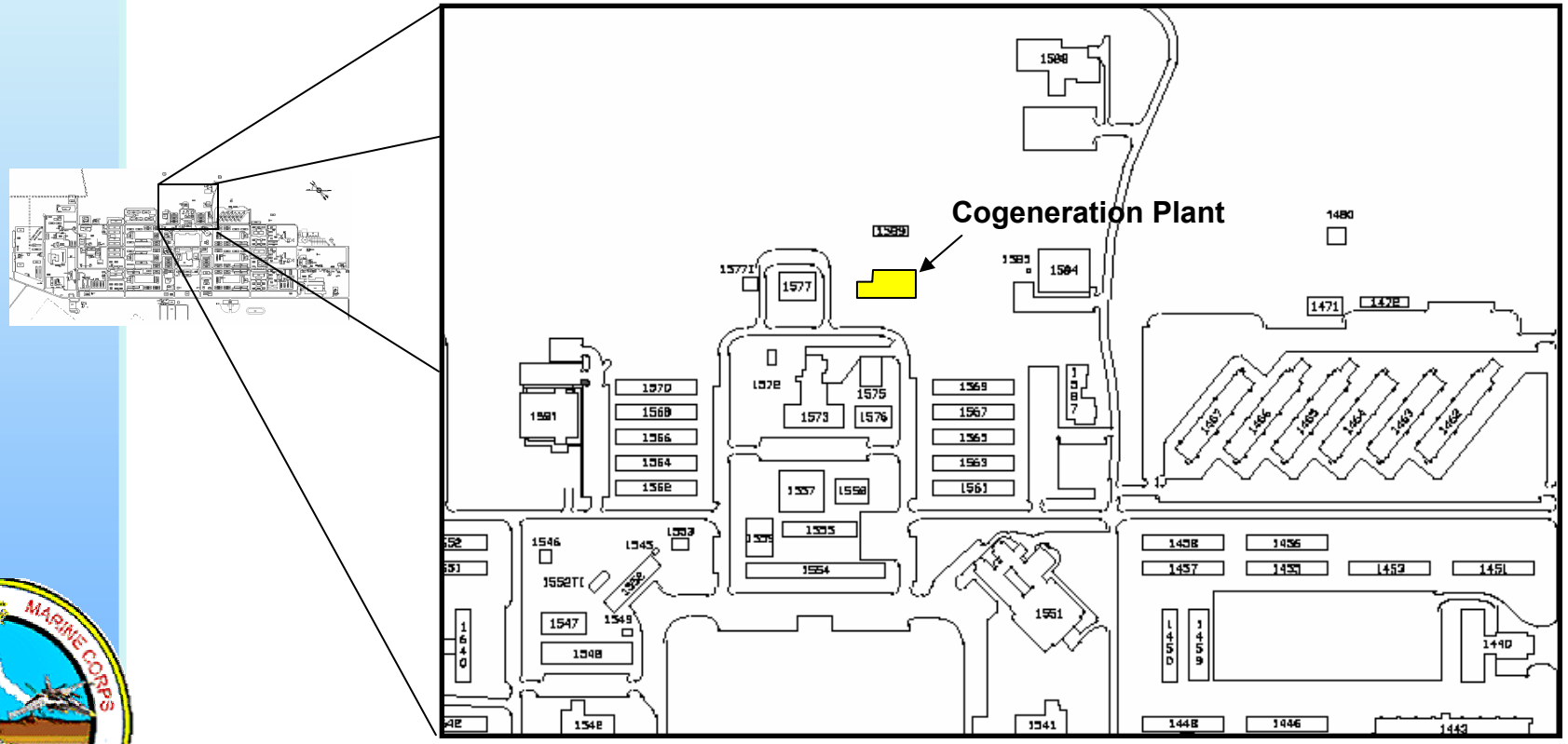
Project:	Cogeneration Plant
Completion Date:	March 2003
Estimated Annual Savings:	$5,881,558
Implementation Cost:	$18,167,614
Simple Payback:	3.1 years
Electric Power	Rated at 7.5 MW
High Temp. Hot Water	27 MMBTUs

Savings Stream Pays for Future Projects

The Benefit of Energy Savings Performance Contracting

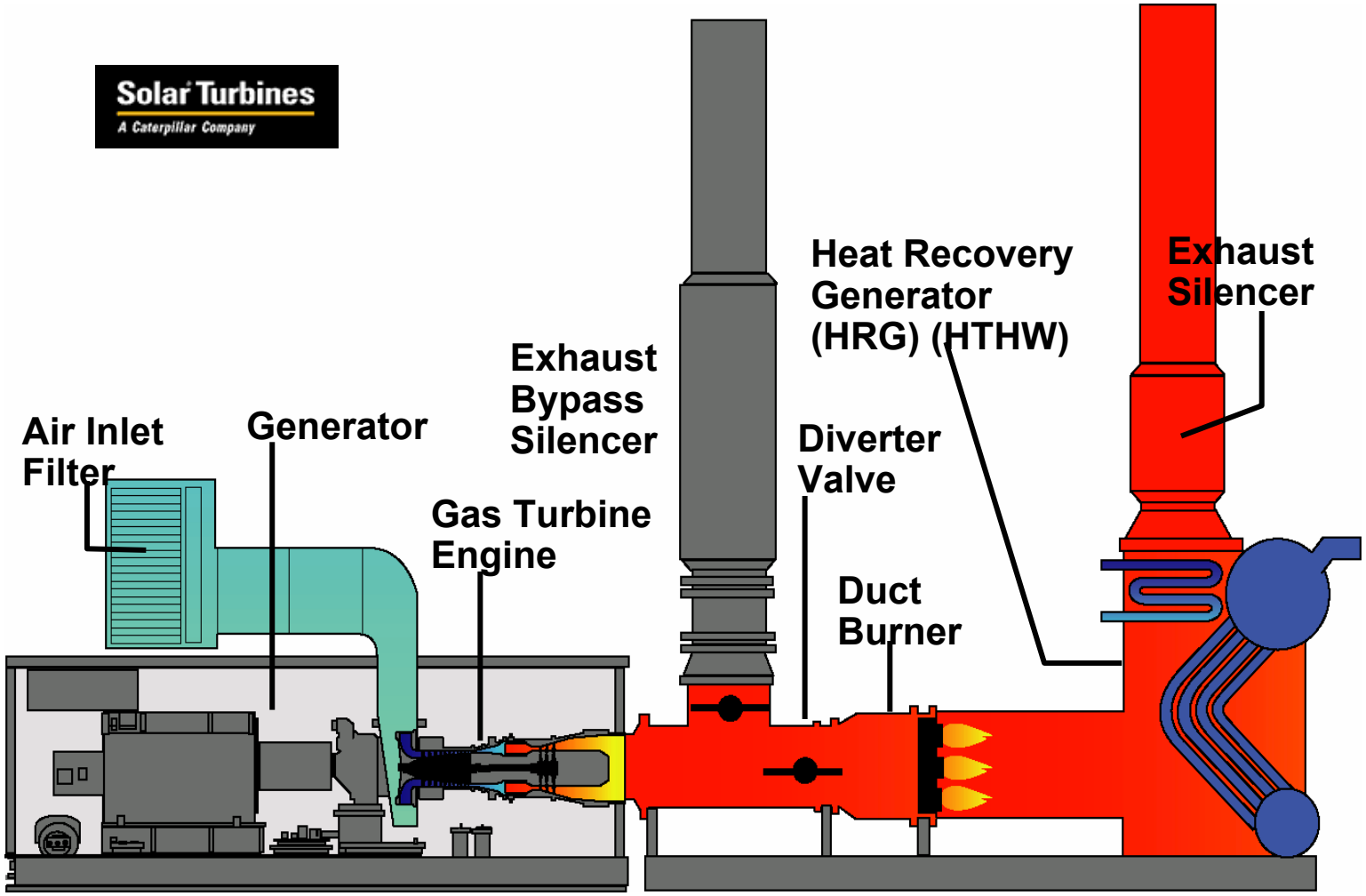
Strategic Projects

7.5 MW Cogeneration Plant



Strategic Location Planning

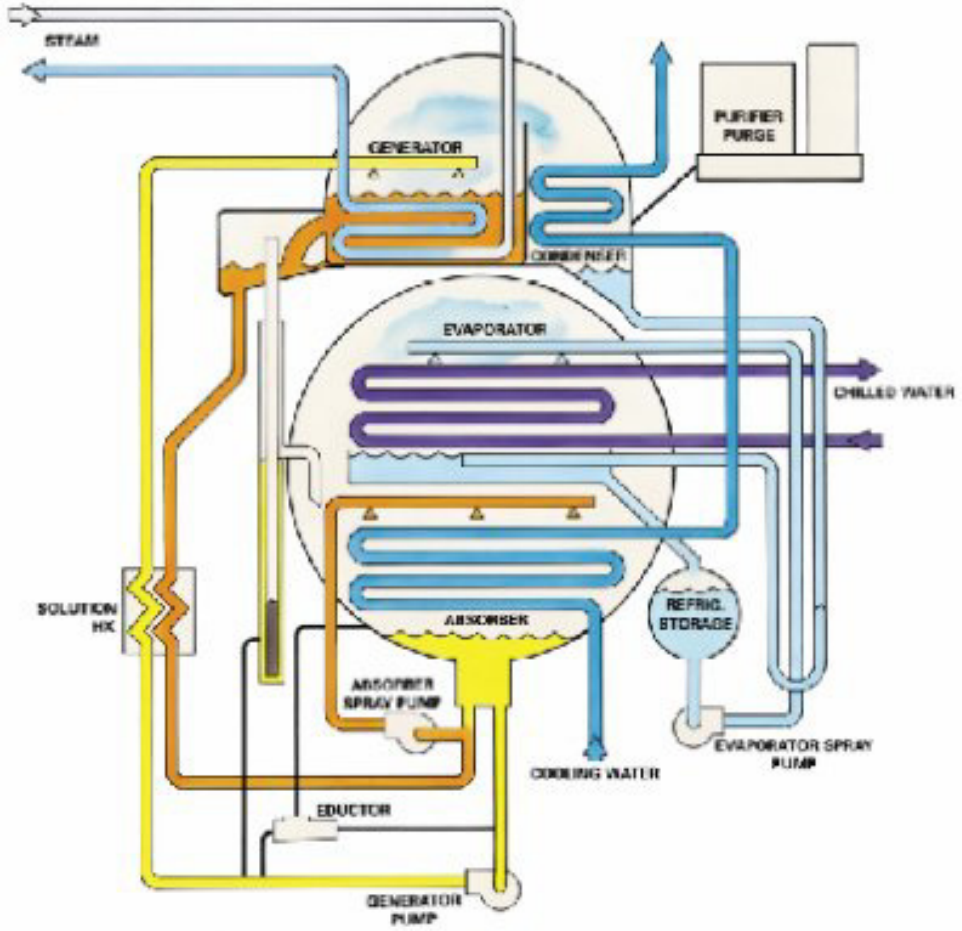
Typical CHP Process



The Gas Turbine Generator Set

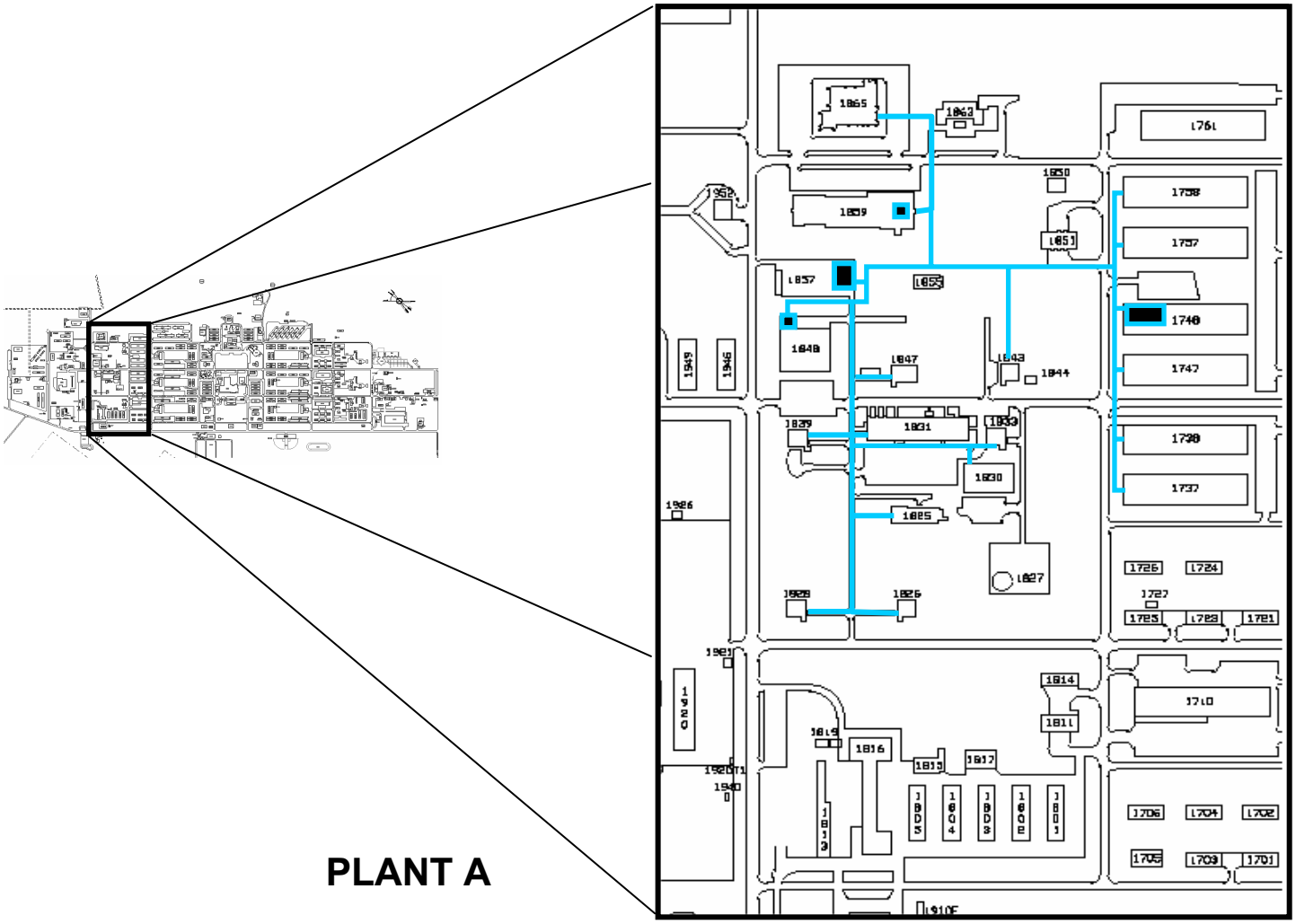
Match Resource to Requirements

HTHW Absorption Chillers



Overall System Efficiency Benefits

Strategic Projects

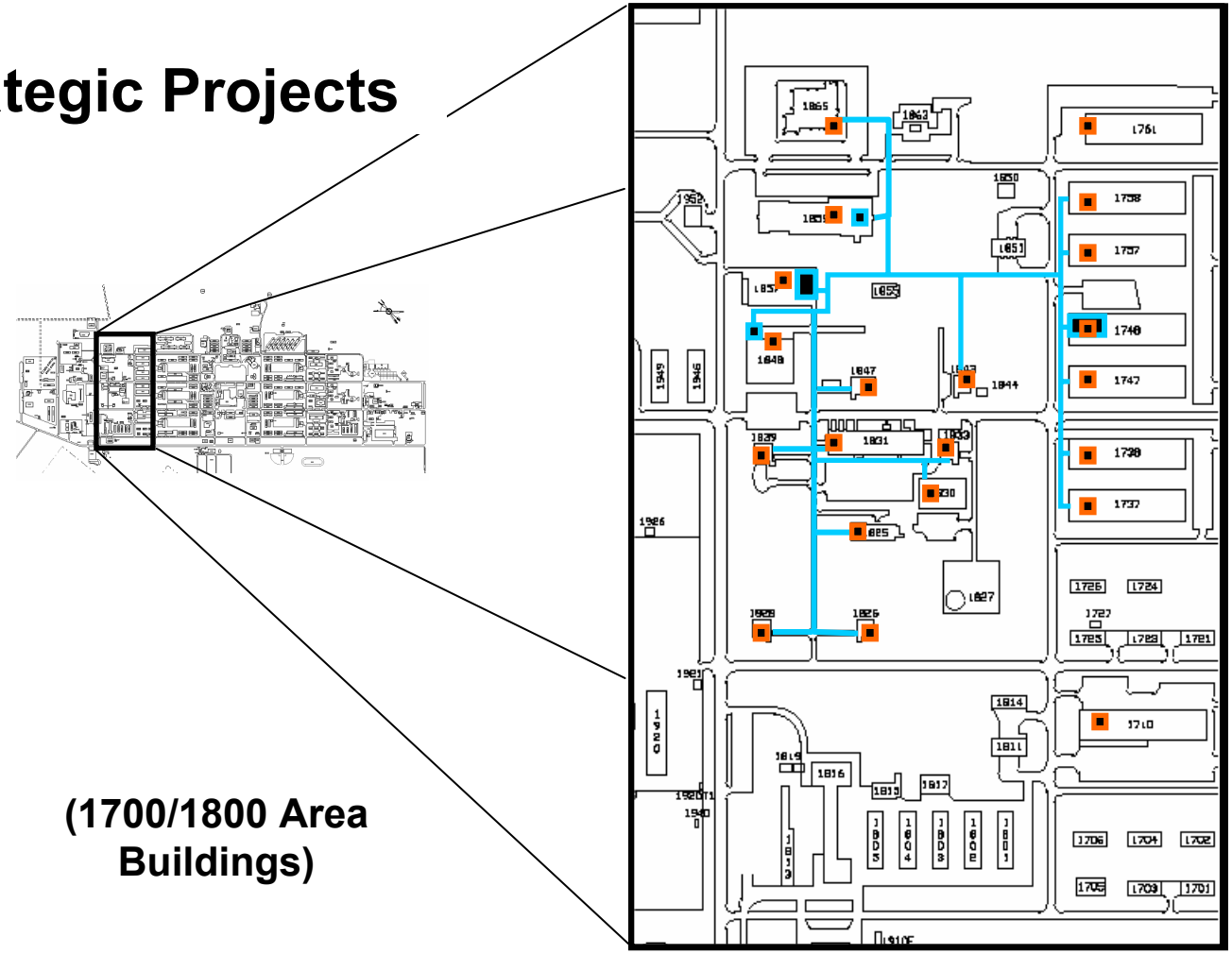


PLANT A

(1700/1800 Area Buildings)

Strategic Infrastructure Improvements

Strategic Projects



(1700/1800 Area Buildings)

Managing The Results

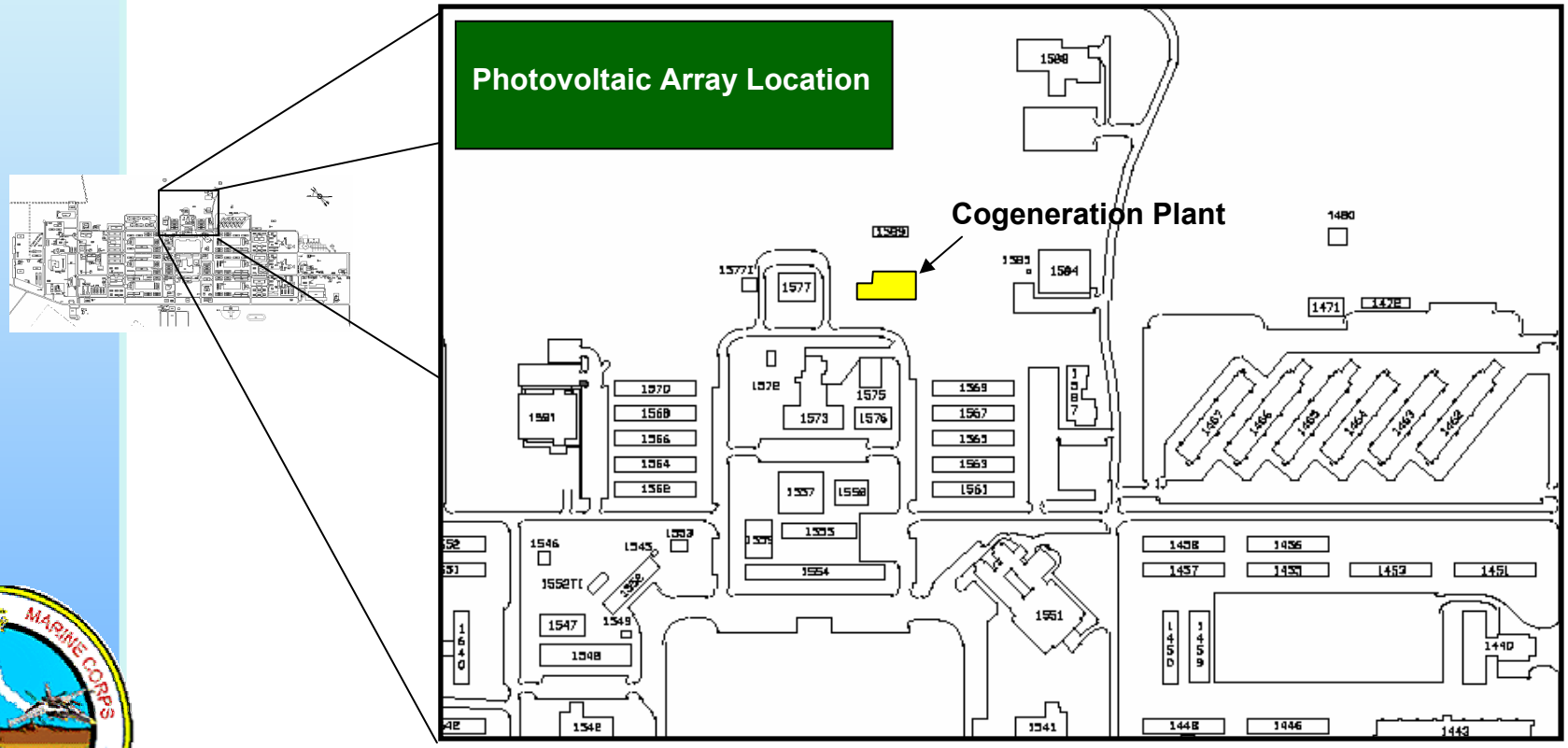
1.1 MW Photovoltaic Array

Project:	1.1 MW PV Array
Completion Date:	September 2003
Est. Annual Energy Savings:	$521,950
***Implementation Cost:**	$6,514,194
Simple Payback:	12.5 years

* Reflects cost after Utility Incentive Payment

320+ Days of Sunshine Annually

Strategic Projects



Coordination Pays Significant Rewards

- Strategic Projects - 1.1 MW PV Array

  - Provides renewable energy supply in peak daylight periods
  - Reduces electrical demand from outside grid
  - Largest Federal System installed in the world (non-commercial)
  - Intertied through cogen electrical system -
  - $4.5M Utility Incentive for Renewable Resources
  - Maintenance/repairs/replacement through term of contract
  - Meets Executive Order 13123 Goals for renewable energy

Future Projects

- Wind Power – working w/DOE
- Waste Water Treatment Plant – conserve both water and power
- Additional PV – Another MW?
- Exterior Lighting – Better Anti-terrorism/Force Protection, better illumination where needed, less light noise

Lessons Learned

- Combine projects early –benefits of Chilled water system won't be realized until a year after construction of the Cogen plant.
- Natural Gas Pressure – Could cost up to $300k/year, another gas line nearby had pressure.
- Long term maintenance – long term warranty
- A good program is self perpetuating, additional opportunities have been introduced to the base because of our success.